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FEB 01 2016

Attention: Colonel Jon J. Chytka

Re: EPA Comments on the Draft Environmental Impact Statement(DEIS) for the Update of the Water Control Manual for the Apalachicola-Chattahoochee-Flint River Basin Water Control Manual; Alabama, Florida and Georgia. CEQ #:20150278; ERP #: COE-E39091-00

Dear Colonel Chytka:

Pursuant to Section 309 of the Clean Air Act (CAA) and Section 102(2)(C) of the National Environmental Policy Act (NEPA), the U.S. Environmental Protection Agency (EPA) reviewed the Draft Environmental Impact Statement (DEIS) for the Update of the Water Control Manual (WCM) for the Apalachicola-Chattahoochee-Flint (ACF) River Basin. The EPA previously provided Public Notice and Notice of Intent comments on December 8, 2008, and scoping comments on November 25, 2012. We also participated in a scoping meetings as well as public meetings held on October 22, 2008, and March 25, 2013, respectively.

There are five reservoir projects operated and managed by the USACE in the ACF Basin – Buford Dam and Lake Lanier; West Point Dam and Lake; Walter F. George Lock, Dam, and Lake; George W. Andrews Lock, Dam, and Lake; Jim Woodruff Lock and Dam; and Lake Seminole; and an additional nine reservoirs that are privately owned. The authorized purposes of the federal reservoirs include flood risk management, hydropower, navigation, water supply, water quality, fish and wildlife conservation, and recreation.

According to the DEIS, the purpose of the WCM is to determine how federal projects in the ACF Basin should operate based on their authorized purposes and applicable laws. The operations at each of the federal reservoirs managed by the U.S. Army Corps of Engineers (USACE) are described in a master WCM, which includes WCMs for the operation of the ACF Basin and for the individual USACE projects within that system. In order to implement the proposed operations, the water control plans and manuals for the ACF River Basin need to be updated.

The EPA appreciates the efforts the USACE made to evaluate the impacts of the proposed action in the Basin. However, as discussed below and in the detailed comments (See enclosure), there are aspects of the evaluation that could benefit from further analysis and collaborative review. Given the uncertainty associated with how various metrics were used to develop the alternatives analysis, newly developed information on reduced population growth and consumptive use in the

upper basin, and the unrefined analysis from the water quality modeling tool, the EPA supports the formation of an Interagency Workgroup (IWG) to fully assess the potential water quality and other impacts from the changes in reservoir operations proposed in the DEIS. The EPA notes that other federal agencies have made similar requests, and we would fully support this effort. In addition to reviewing the analysis of the alternatives, the EPA anticipates that the IWG would help to develop a Basin-wide monitoring and adaptive management plan similar to the Savannah River Basin Comprehensive Study. The study is being performed as a cooperative effort between the USACE, the EPA, the Georgia Department of Natural Resources, the South Carolina Department of Natural Resources, and The Nature Conservancy. Additionally, the EPA has had success working with the USACE on other IWGs (i.e., Savannah Harbor Expansion Project and Everglades Restoration) to resolve project uncertainties and develop adaptive management and monitoring strategies. The EPA would expect similar success if the USACE Mobile District fully engaged federal and state partners on the ACF WCM.

The DEIS evaluates a no action alternative (NAA) and several action alternatives. Alternative 7H was identified as the USACE's preferred alternative. The preferred alternative includes the proposed Glades Reservoir project. Based on our review, the EPA notes that the alternatives will have to be modified to reflect the new population growth and water demand numbers generated in August, 2015. We are also concerned with the limited range of alternatives examined in the DEIS and the methodology that was used to select the final alternatives. The EPA believes that there are other alternatives not considered in the DEIS that will result in fewer environmental impacts.

The EPA is also concerned that the DEIS does not fully consider the affected environment including impacts to water quality, recreation and threatened and endangered species when selecting the preferred alternative. We note that other project purposes such as navigation and water supply are given higher priority when screening the alternatives. We recommend that there should be equal consideration given to all of the project purposes identified in the DEIS when drafting the Final EIS (FEIS).

The EPA continues to be concerned about the potential for significant environmental and economic impacts resulting from the preferred alternative. The DEIS acknowledges that implementing the proposed operational decisions will have water quality impacts. Changes to the ambient water quality of the ACF Basin from implementing the preferred alternative may necessitate corrective actions by the States and other stakeholders including, additional water quality monitoring, developing or revising total maximum daily loads (TMDLs) for various pollutants, implementing revised TMDLs, modifying National Pollutant Discharge and Elimination System (NPDES) permit limits for point sources as well as funding projects to mitigate impacts from nonpoint sources within the ACF Basin. In summary, the EPA recommends that the USACE continue to revise the WCM update to ensure that all project purposes are weighted equally. The USACE is responsible for ensuring that WCM operations do not cause State water quality standards to be exceeded, including maintaining downstream uses and adequate flows to maintain the physical integrity of the habitat, consistent with the authorized purposes of the projects. Implementing the operational changes associated with the preferred alternative are likely to result in additional localized stream and wetland impacts that are not reflected in the DEIS.

The EPA has rated the DEIS as "EO-2", indicating that we have environmental objections with the preferred alternative with additional information requested for the final document. The preferred alternative includes the proposed Glades Reservoir project. This reservoir project has been neither approved nor permitted and the preferred alternative should not be predicated on an alternative that has not been or may never be constructed. The EPA believes that the implementation of the preferred alternative has the potential to be inconsistent with current state designated uses as established by the state water quality standards in portions of the river system. This has the potential to cause exceedances of applicable state water quality criteria. In addition, this could require modifications to applicable TMDLs and NPDES permits. The DEIS does not fully evaluate the consequences of the preferred alternative. The EPA's review has identified environmental impacts that should be avoided or minimized in order to adequately protect the environment. The EPA recommends that the Mobile District of the USACE consider working with the agencies prior to the submittal of the FEIS document to help ensure that all concerns are addressed during the NEPA process. The EPA also recommends that the FEIS demonstrate responsiveness to the comments described in the attachment. The EPA is willing to work with the USACE to ensure that operation of the ACF Basin is consistent with water quality standards and protective of aquatic resources.

The EPA appreciates the opportunity to provide comments on the proposed WCM DEIS for the ACF Basin and looks forward to working with you to address our concerns. If you have any questions regarding our comments, please contact Ntale Kajumba (404/562-9620) of the NEPA Program Office.

Sincerely,

G. Alan Farmer
Director
Resource Conservation and
Restoration Division

James Giatinna
Director
Water Protection Division

Enclosure: EPA Detailed Comments

Enclosure
EPA's Detailed Comments on the Water Control Manual Update DEIS for the ACF River Basin
CEQ No.: 20150278

The ACF River Basin begins in northeast Georgia, spans the Georgia-Alabama state line into central Alabama, and follows the state line south to Apalachicola Bay, Florida. The basin is approximately 385 miles long and drains 19,573 square miles.

There are five Federal reservoirs - four located on the Chattahoochee River and one along the Apalachicola River, and nine privately-owned reservoirs in the ACF system. At the headwaters of the system north of Atlanta are Buford Dam and Lake Lanier. Other Federal reservoirs in the river system include West Point Dam and West Point Lake; Walter F. George Lock and Dam and W.F. George Lake; George A. Andrews Lock and Dam and George A. Andrews Lake; and Jim Woodruff Lock and Dam and Lake Seminole.

The purpose of the ACF Water Control Manual updates is to identify operating criteria and guidelines for managing water storage and release of water from USACE reservoirs.

Alternatives

The DEIS evaluates a no action alternative (NAA) and several action alternatives (Water Management Alternatives 1-7 and Water Supply Alternatives A-H). The NAA involves no change in how the dams are currently managed. It includes general system operations, action zones, and authorized project purposes described in the DEIS. The NAA also includes current water supply operations including withdrawals directly from Lanier Reservoir and Buford Dam releases for downstream withdrawal. The DEIS also identifies the preferred action alternative (PAA) which includes general system operations, action zones, and authorized project purposes described in the DEIS; current water supply withdrawal levels and part of Georgia's 2040 water supply need within Lanier Reservoir (185 millions of gallons per day or mgd), assuming an additional 40 mgd would be withdrawn from the proposed Glades Reservoir; and releases from Buford Dam of 408 mgd that would provide for water supply withdrawals from the Chattahoochee River at Atlanta.

The PAA provides a minimum flow rate of 750 cfs at Peachtree Creek from May through October and 650 cfs from November through April. The action zones under the PAA would be modified for Lanier Reservoir, West Point Reservoir, and Walter F. George Reservoir. The action zones in Lanier Reservoir and West Point Reservoir move up in the fall and winter and the action zones move down in Walter F. George Reservoir, mainly during the summer. Under the PAA, a reliable navigation season would also be provided. The navigation season would extend from January through April or May based on hydrological conditions.

No Action Alternative: On page 4-46 (4.2.1.2.7), the DEIS states that, "Under the Water Management Alternative 1, withdrawals would be limited to 20 mgd from Lake Lanier (Buford and Gainesville relocation contracts) with a 50 percent return rate and to current withdrawals (277 mgd) downstream of Buford Dam by Metro Atlanta. The withdrawal value for Lake Lanier does not reflect current withdrawals, only those that are currently authorized and do not require a

storage agreement." However, Table 5.2-1 and Section 5.2.1.2.7 on page 5-12 indicate that the NAA has Lake Lanier withdrawals at 128 mgd. Section 4.1.2.9 Water Supply (pg 4-33) indicates that modeling was based on 20 mgd withdrawals at Lake Lanier and does not fully explain when the 128 mgd (status quo or NAA) was taken into consideration and modeled. Chapters 4 and 5 seem to be inconsistent when discussing the water withdrawals of the status quo (128 mgd) within the NAA. However, as a result of a discussion with the USACE on December 19, 2015, the EPA understands that the USACE did consider the NAA (128 mgd) water withdrawals when modeling the second phase of the plan formulation. The EPA notes that it is more appropriate to model 128 mgd (current withdrawals from Lake Lanier) rather than for 20 mgd (approved water contracts from Lake Lanier) during Phase I of the alternatives analysis. The EPA also notes that there are numerous graphs and visual displays; however, the body of the text is lacking sufficient information to describe the significance of these graphs. As written, the NAA and modeling for the NAA at Lake Lanier is difficult to understand and is confusing for stakeholders and the public to understand.

The EPA is concerned that Alternative 1 is carried forward as a basis for comparing performance among the other alternatives, however, a No Action Alternative would better be represented by what is currently being withdrawn from Lake Lanier. The status quo is clarified (on page 5-5, lines 19-20) as "up to 128 million gallons per day (mgd) of water is being withdrawn from Lake Lanier without storage agreements." Therefore, the EPA believes that 20 mgd is not an accurate representation of current water supply operations, and 128 mgd (status quo) would better represent a No Action Alternative by which to compare alternatives. The EPA is also concerned that all seven Water Management Alternatives use the same water supply operations of 20 mgd for relocation contracts, which makes it difficult to evaluate and rank the selected water management measures (Section 4.1.4).

The USACE states that "In the first phase, water management measures were identified and screened to identify the set of measures that were combined into water management alternatives. The water management alternatives were then evaluated and ranked based on performance metrics. The result of alternative formulation phase I was identifying Water Management Alternative 7 as the Water Management Proposed Action Alternative" (5-1). The EPA is concerned that using the same water supply operations for the first phase of analysis of the seven alternatives does not represent the status quo and therefore does not fully or accurately characterize the beneficial or adverse effects of each of the Water Management Alternatives. Since Lake Lanier is at the headwaters of the system, it is critical to fully disclose the amount of withdrawals used in the model in order to understand performance metrics throughout the system (e.g. drought operations, hydroelectric power generation, federally listed threatened and endangered species operations). If this number is not adequately represented, it is difficult to assess flow at the lower reaches within the system for alternatives analysis. One of the requirements of the alternatives analysis is to "characterize the beneficial and adverse effects by magnitude, location, timing and duration" (ER 1105-2-100, Planning Guidance Notebook, page 2-6). The EPA recommends using the status quo withdrawals (128 mgd) in the model for withdrawals from Lake Lanier, to better assess the performance metrics and magnitude of impact throughout the system.

Recommendation: The EPA recommends that modeling the NAA with 128 mgd during Phase 1 of the alternatives analysis would more accurately reflect the status quo of the basin and provide a better foundation for screening management measures. At a minimum, the EPA recommends the FEIS better explain the methodology and rationale of modeling water withdrawals (especially at Lake Lanier) during the second phase of plan formulation. The EPA also recommends that the FEIS expand the discussion (in Chapters 4 and 5) of when modeling was conducted and the integration of formulation of the water management alternatives in phase 1 and water supply alternatives in phase 2 and how that relates to the final suite of alternatives. In addition, the FEIS should include an expanded discussion related to the significance or importance of the numerous graphs in the DEIS.

Consider Alternatives to Only Optimizing Navigation Releases: Given the importance of the ACF WCM DEIS to the regulation of the ACF basin, the DEIS should have considered a broader range of alternatives that optimize releases for multiple project purposes. However, it appears that an evaluation of each mission authority (navigation, hydropower, water supply, etc.) was done singularly rather than combined with other authorities to maximize benefits. Optimizing releases for navigation could be evaluated such that aquatic species and downstream recreation could also benefit.

Recommendation: The EPA recommends the FEIS include an evaluation of navigational releases in the context of optimizing releases for other beneficial uses to include environmental flows (water quality and fish and wildlife) and downstream recreation (to include federal and non-federal reservoirs and riverine sections).

Considering Alternatives to Peaking Power at Buford Dam: The EPA is concerned that alternatives to operating Buford dam for peaking power are not considered in the DEIS. The DEIS does not evaluate management measures and alternatives that go beyond USACE authorities. Specifically, the EPA is concerned that management measures and alternatives are not considered that evaluate seeking other sources of power that would avoid operating Buford dam for peaking power. The EPA also notes that South Eastern Power Administration (SEPA), has the flexibility to buy power on the grid in lieu of generating at the dam and has exercised this approach during droughts. The EPA acknowledges the Congressional hydropower authority that was assigned to Buford dam in the authorizing legislation. We also acknowledge that removing that authority would take Congressional action, but consideration and evaluation of eliminating or reducing peak power releases does not require Congressional action. The Council on Environmental Quality (CEQ) addresses evaluating alternatives outside an agencies authorities and states, "An alternative that is outside the legal jurisdiction of the lead agency must still be analyzed in the EIS if it is reasonable. A potential conflict with local or federal law does not necessarily render an alternative unreasonable, although such conflicts must be considered. [40 CFR] Section 1506.2(d). Alternatives that are outside the scope of what Congress has approved or funded must still be evaluated in the EIS if they are reasonable, because the EIS may serve as the basis for modifying the Congressional approval or funding in light of NEPA's goals and policies. [40 CFR] Section 1500.1(a)." (https://ceq.doe.gov/nepa/regs/40/1-10.HTM#2). Evaluating this alternative is critical due to the environmental, recreation and safety concerns that arise from the current and proposed operation of the dam.

This consideration is consistent with the EPA's position for the need to re-evaluate the balance between dam operations and current use designations in a waterbody. In a July 7, 1998, *Federal Register* (Vol. 63, No. 129, pg. 36755) there is a review of the language in the 1986 amendments to the Federal Power Act (Electric Consumer's Protection Act, or ECPA) which states that when considering the relicensing of a dam there should be equal consideration given, "... to the purposes of energy conservation, the protection, mitigation of damages to, and enhancement of fish and wildlife (including related spawning grounds and habitat), the protection of recreation opportunities, and the preservations of other aspects of environmental quality." The *Federal Register* notes that the legislative record indicates that there should no longer be "business as usual" but that "projects licensed years earlier must undergo the scrutiny of today's values as provided in this law and other environmental laws applicable to such projects." This contemplates that the relicensing evaluation should be measured "against today's values" rather than be held to decisions made at the time of dam creation.

Although written in the context of FERC licenses, the legislative history recognizes it is necessary to evaluate the need to balance dam operation with downstream designated uses in general. By analogy, this seems particularly relevant for the review of this project, since, as noted in the historical section, this river basin and its uses have undergone significant change since the dam was first put in operation.

Recommendation: The EPA recommends the FEIS evaluate alternatives to operating Buford dam for peaking power and/or reducing Buford dam releases for peaking power.

Water Supply Alternatives: The DEIS discussed the State of Georgia's 2013 allocation request. The EPA notes that if the state's water demand can be met by allocation from Lake Lanier, then another approach would be to select an alternative that does not include newly proposed reservoirs (especially given the direct and irreversible impacts to streams and wetlands as well as the costs of constructing a new reservoir). In addition, the proposed projects have not completed the environmental and permitting phases. The EPA notes that the USACE determined the appropriate allocation to the state of Georgia should be a total of 225 mgd (pg 5-7). The PAA includes the total allocation of 185 mgd with the inclusion of Glades Reservoir (an additional 40 mgd). However, there is no alternative that considers a total allocation of 225 mgd to the state of Georgia without further construction. In other words, the FEIS should consider an alternative that would grant the state of Georgia an additional 40 mgd allocation (on top of the 185 mgd for a total of 225 mgd) without including Glades Reservoir. The EPA is concerned that this alternative was not evaluated during the alternatives analysis and therefore, the full range of alternatives were not considered or disclosed. Furthermore, that this allocation could be made directly from Lanier rather than constructing a new impoundment that would simply pass through water for withdrawal from Lake Lanier, may well be the Least Environmentally Damaging Practicable Alternative.

In August 2015, the Metro North Georgia Water Planning District (MNGWPD) released updated water demand projections that indicate metro Atlanta will need 25% less water in 2050 than a previous analysis (2009) projected, due in part to 2050 population projections that are notably less than anticipated. Understandably, the latest numbers are not included in the state of

Georgia's 2013 allocation request nor are they within the current DEIS. However, it should be noted that the total water demand for Hall County was projected to be at most 34 mgd.

Recommendation: As previously discussed, the EPA requests that the FEIS consider an additional alternative that includes the USACE's calculated water allocation of 185 mgd with an additional 40 mgd Hall County allocation (without assuming construction of Glades Reservoir) for a total allocation of 225 mgd or lower based on revised values. The water allocation numbers for all alternatives, including the additional alternative that excludes Glades Reservoir, will need to be re-calculated based on the updated water demand and population projections from the MNGWPD and the Georgia Office of Planning and Budget (OPB).

Water Management Measures Alternatives: It appears that the water management measures and metrics were not coordinated with appropriate state and federal resource agencies. Given the significance of the ACF WCM update, it is important that these water management measures be vetted with state and federal subject matter experts to ensure the foundation of alternative analysis is accurate.

Recommendation: The EPA recommends that the USACE fully coordinate with the state and federal resource agencies regarding the alternative analysis especially on water management measures and metrics.

Ranking Water Management Alternatives: The EPA notes that each alternative is ranked based on its performance for hydropower, navigation, fish and wildlife management, recreation and water supply (ES and pages 4-61 – 4-74). However, the USACE does not similarly rank each project for water quality or threatened and endangered species. As previously discussed, the EPA is concerned with the lack of balance in analyzing all authorized project purposes (as established in ES-1) in the alternative analysis.

Recommendation: The EPA recommends the FEIS consider all authorized purposes including water quality and threatened and endangered species, during the initial screening of water management alternatives.

Full consideration of all Congressional Authorities in Alternative Selection

The DEIS states, on page ES-1 that " USACE operates and manages the ACF Basin projects as one system to meet the following authorized purposes: flood risk management, hydropower, navigation, fish and wildlife conservation, recreation, water quality, and water supply." However, the EPA notes that the DEIS does not include water quality, recreation or threatened and endangered species as a management measure within Chapter 4 or 5. The EPA notes that the USACE recognizes the importance of environmentally related project purposes and states that "Updates to the WCMs are also needed to: Address environmental objectives for water quality, federally listed threatened and endangered species, and fish management (page 1-4 (line 1))." However, water quality, fish management and threatened and endangered species are not considered in the same manner as other authorized purposes within the Water Management Objectives ((ES-10 or Chapter 4) or Water Supply Objectives (ES-16 or Chapter 5).

In the Executive Summary (ES), eight guidelines screening criteria are listed (p. ES-6) for any proposed measure or alternative considered in the update process. One of the eight screening criteria provides that the measure (or alternative) "should address one or more of the congressionally authorized project purposes." The DEIS discusses this criteria further:

"In accordance with USACE governing regulations, water control plans are prepared giving appropriate consideration to all applicable congressional acts relating to the operation of federal facilities. For the ACF Basin, the congressional acts include the authorizing legislation, referenced project documents, and relevant general authorities (e.g., the Fish and Wildlife Coordination Act, Federal Water Project Recreation Act-Uniform Policies, [Federal] Water Pollution [Control] Act of 1972 as amended, the ESA, the Flood Control Act of 1944, and the Water Supply Act of 1958)."

Despite this language, it is not clear from the DEIS that maintaining state water quality standards was part of the screening criteria the USACE used to evaluate the water management measures and alternatives. In addition, on page ES-10, the DEIS states that the USACE "developed objectives for the Master WCM update and the WSSA to address challenges identified and issues based on operational experience gained under the draft 1989 Master WCM." The EPA is concerned that the objectives developed based on operational experience may have missed several challenges related to relevant authorities such as water quality, fish and wildlife conservation, and aspects of water supply. All statutes related to all project purposes and objectives should have been considered when developing proposed measures and alternatives.

In summary, the EPA has serious concerns with the alternative selection methodology the USACE used in the DEIS because it does not appear that water quality was taken into consideration in the formulation and screening of alternatives. The DEIS defines water quality as an authorized purpose, and it therefore should have been included in the screening criteria and objectives. However, none of the water management measures, which are based on objectives, include water quality considerations. In addition, it is not clear from the DEIS that maintaining state water quality standards was part of the screening criteria the USACE used to evaluate the water management measures. As a result, the alternatives evaluated in the DEIS, which are based on the water management measures, appear to be devoid of any water quality considerations.

Recommendation: The EPA recommends the USACE more fully consider environmentally related authorities such as water quality, recreation and threatened and endangered species. To ensure a more balanced approach to the operation of the system and disclosure of impacts, the EPA recommends that the FEIS more holistically consider water quality, fish management and federally listed threatened and endangered species within the alternative analysis. Specifically, the EPA recommends the following:

- Incorporate water quality and federally listed threatened and endangered species as a water management measure, which will ensure a more holistic approach to the operation of the system.
- Expand the Fish and Wildlife water management measure to include other aquatic species and also include oyster production in Apalachicola bay. The EPA also recommends the

USACE collaborate with US Fish and Wildlife Service (USFWS) and state fish and wildlife agencies in developing management measures.

- Include a water management measure objective that includes water quality, protection of designated uses (i.e., aquatic life, recreation, shellfish harvesting, etc.), fish and wildlife management, and federally listed threatened and endangered species. These should be evaluated throughout the system, not just within the five USACE operated reservoirs.
- Add water quality, fish management and federally listed threatened and endangered species as a screening criteria.

Water Quality/Water Quality Standards

Water Quality/Water Quality Standards: The EPA is concerned that applicable state water quality standards and water quality in general were not fully addressed in the DEIS as required by USACE authorities, guidance and the CWA, and NEPA. As noted above, water quality is not given equal value and importance as compared to other project purposes in the DEIS and was not included in the metrics for alternative selection. As stated in the EPA's original scoping comments, the revised WCM should be consistent with state water quality standards – specifically, the implementation of the WCM should not cause or contribute to an exceedance of a water quality criteria (narrative or numeric) and should provide for the protection of the designated uses, including downstream uses. This should include ensuring compliance with physical parameters (i.e., pH, temperature, conductivity and dissolved oxygen), biological criteria, chemical parameters, nutrient loadings (including lake nitrogen, phosphorus and chlorophyll standards) and providing the flows necessary for protection of the designated uses. For the rivers and reservoirs affected by this WCM, those uses include drinking water, recreation, fishing, swimming, shellfish harvesting and aquatic life protection. These designated uses apply on both the riverine and estuary sections as well as within the reservoirs.

In response to scoping comments that the USACE should analyze the effects of the WCM operations on water quality standards, the USACE states that water quality will be taken into account when updating water control plans and manuals but that:

"Water quality management and control of point and nonpoint sources of pollution off USACE project lands is principally the responsibility of the states. In accordance with ER 1110-2-8154, the USACE has an objective to ensure that water quality, as affected by a USACE project and its operation, is suitable for project purposes, existing water uses, and public safety, and is in compliance with applicable federal and state water quality standards….Under the [Federal] Water Pollution [Control] Act of 1972 as amended, states (not USACE) establish water quality standards and are responsible for ensuring that wastewater discharges meet those standards."

The EPA disagrees with this statement. The USACE, like all federal agencies, is required to ensure that all federal, state, interstate, and local requirements including water quality standards are met when developing a Water Control Manual, which includes not creating conditions that impair water quality standards, consistent with the authorized purposes of the water control structures. These requirements are found in the CWA, Executive Orders, promulgated regulations, and the USACE's own guidance.

Section 313 of the CWA addresses federal facilities pollution control. Under Section 313, each agency of the federal government with jurisdiction over any property or facility or engaged in any activity resulting, or which may result, in the discharge or runoff of pollutants, shall be subject to and comply with all federal, state, interstate, and local requirements… respecting the control and abatement of water pollution.

Similar language and requirements are found in Executive Order 12088, 43 FR 47707, Oct. 17, 1978: "[t]he head of each Executive agency is responsible for ensuring that all necessary actions are taken for the prevention, control, and abatement of environmental pollution with respect to Federal facilities and activities under the control of the agency." The USACE must also follow its regulations including, for example, 33 CFR § 222.5(f)(1), which requires the USACE to prepare water control plans giving appropriate consideration to all applicable Congressional Acts relating to operation of Federal facilities.

In addition to federal laws, Executive Orders, and promulgated regulations, the USACE has also published regulatory guidance related to water control manuals and water quality. Relevant guidance includes, ER1110-2-8154, Water Quality and Environmental Management for Corps Civil Works Projects, and ER1110-2-8156, Preparation of Water Control Manuals. These Environmental Regulations (ERs) identify the USACE's responsibility to address water quality.

Recommendations: The EPA recommends that the USACE: 1) accurately quantify the water quality impacts for the various regulation options considered using a site-specific sophisticated modeling framework; and 2) select the option that complies with water quality standards to the maximum extent feasible, which includes not creating conditions that impair water quality standards, consistent with the authorized purposes of the dam. The option selected should provide for the protection of the designated uses, including downstream uses.

The EPA recommends analyzing the effects of the WCM operations on water quality standards, with a particular emphasis on physiochemical endpoints such as dissolved oxygen and other numeric water quality standards, biological endpoints such as sensitive aquatic species and physical endpoints that protect the designated aquatic life use, including adequate flows to maintain the physical integrity of habitat.

Designated Uses: The EPA notes that designated uses of riverine sections were not specifically identified or evaluated in the DEIS.

In Section 2.1.2, the USACE does include an overall listing of the designated uses for each state. However, there is no overall mention of which designated uses apply to which segments in the basin. The DEIS should include a map or listing of which of those designated uses apply in each of the segments of the rivers and reservoirs covered in the DEIS, so that it is clear not only which criteria apply, but also which uses must be protected. For instance, in the DEIS there is a discussion to evaluate what is needed to support recreation on the reservoirs. However, those are not the only segments in the Basin with recreation as a designated use. Riverine segments with recreation, including those directly below and significantly impacted by project operations such as the Chattahoochee River National Recreation Area located in the first 48 miles below Buford Dam, have significant recreation in and on the water. The DEIS not only fails to evaluate

impacts of the alternatives on those sections, but there is not even any acknowledgement of the recreation on riverine segments. The operation of the projects will affect downstream designated uses and the FEIS should identify, evaluate and disclose those impacts.

Recommendation: The EPA recommends that designated uses of riverine segments in the ACF Basin be identified and evaluated in the FEIS. We also recommend that each of the designated uses affected by the project must be identified along with the conditions necessary to protect those designated uses evaluated.

Water Quality Standards: The Water Quality Chapter of the WCM (Chapter 2.1.2) includes a listing of the water quality criteria for Alabama, Georgia and Florida. The EPA notes that the following criteria is incorrectly referenced, "Site-specific nutrient standards have been developed for West Point Lake; monthly average chlorophyll a must be less than 27 µg/L at the LaGrange water intake during the growing season (April-October)."

Recommendation: The EPA recommends that this be revised to state that GAEPD requires chlorophyll a to be less than 24 µg/L at West Point Lake.

Ecological Flows: During scoping, the EPA recommended that the WCM was an opportunity to more appropriately incorporate at least some level of naturalized instream flows. The EPA's scoping comments noted that since the date of the last WCM update, "numerous licenses were…negotiated and re-issued by the Federal Energy Regulatory Commission (FERC). Many renewed FERC licenses included advancements in water management and dam operations to better protect and maintain aquatic life which could be adapted for use on federally regulated rivers. For example, the FERC license issued to South Carolina Electric and Gas (SCE&G) for the operation of the Lake Murray Dam on the Saluda River includes numerous updated provisions for protection of mussels, sturgeon, trout and rare plant and animal species. The revision of the WCM provides an opportunity to incorporate the latest science and successful practices for regulating flows to improve water quality, meet designated uses and, where possible, restore the hydrologic condition and ecological integrity of the river system. For instance, ecologists now understand that flows across the range of the natural hydrograph are important for maintaining structure and function of aquatic ecosystems rather than regulating a river to meet a static low flow target." The EPA also supported, "…the suggestions provided in the Fish and Wildlife Service's Planning Aid Letter (dated April 2, 2010, with March 1, 2011 addendum) to efficiently derive flow targets protective of a balanced and indigenous aquatic flora and fauna." The EPA suggests the use of multiple endpoints to demonstrate the protection of aquatic life designated uses. Relevant endpoints include floodplain connectivity (inundation, maintenance of off-channel habitats, wetted perimeter, out-of-bank habitats) and habitat suitability analysis. Because of the intensity of the latter (e.g. PHABSIM), the EPA recommends consulting the relevant wildlife resources agencies to determine which habitat locations are critical to aquatic life in the basin and may warrant prioritized, intensive study. In response to those comments, the DEIS stated that the "USACE evaluated the feasibility of providing a seasonally varying baseflow hydrograph that would more closely approximate pre-dam conditions (e.g., more closely simulate run-of-the-river, before impoundment conditions). That analysis confirmed that the presence of the dams and their operations have altered the pre-dam flow regime by generally providing a more stable flow pattern with higher base flows and

lower peak flows. The Buford and West Point projects were designed to provide flood risk management and altering seasonal variability, and reducing higher peak flows has been the result. Therefore, operating the projects to match the natural flow regime would adversely affect the congressionally authorized purpose of flood risk management." However, the DEIS does not explain how operating projects to mimic natural flows will adversely impact flood risk management.

Recommendation: The EPA recommends the FEIS explain how this proposed management measure (incorporation of natural flows) would adversely impact flood risk management in the system. The EPA continues to support the incorporation of naturalized instream flows to improve water quality and aquatic life conditions in the ACF basin. The EPA also supports the updated recommendations by the USFWS included in the DEIS and the use of an Interagency Workgroup, to include, at a minimum, ensuring the inclusion of those actions necessary to meet the requirements set out by the USFWS.

National Pollutant Discharge Elimination System (NPDES) Permits and Total Maximum Daily Loads (TMDLs)

The EPA is concerned that the USACE did not fully consider the impacts to all NPDES permit holders in the ACF Basin. Table 2.1-33 identifies the 2009 permit limits for facilities that discharge to streams in the ACF Basin and 2012 permit limits for six Alabama facilities. The table lists various parameters such as dissolved oxygen and nitrate/nitrite but does not include additional parameters of concern, such as metals. This table also includes many assumed values for modeling rather than actual permit limits. The EPA notes that this table only lists the major point sources, defined as those that discharge more than 1 MGD of wastewater to surface waters. Table 2.1-33 lists 69 major discharges to the basin, however, the EPA currently lists only 66 major dischargers. This discrepancy could be due to using 2009 data in the table rather than more current values. Additionally, there are many minor dischargers in this basin that will also be affected and should be listed in this document. The EPA notes that currently 1,750 total permits are listed as discharging into the ACF Basin.

Implementing the proposed operational decisions may require corrective action impacting permittees through any needed revisions to NPDES permit limits and pollutant load allocations under TMDLs. These potential impacts have not been disclosed. Critical low flows, or the regulated low flow in systems such as the ACF, are used to calculate an NPDES permittee's discharge limits so that permits will be protective of aquatic life under the most critical conditions. The PAA includes a revision of the regulated low flow from 750 cfs to 650 cfs from November to April of each year. This change to the low flow will decrease assimilative capacity for point and non-point sources. Lowering the critical low flow will necessitate review of permits during permit reissuance to determine if the current permit limits are protective or if limits must be revised in accordance with 40 CFR § 122.21 and 40 CFR § 122.62. Similarly, any TMDL that was based on a flow value of 750 cubic feet per second (cfs) should be reevaluated to determine if it needs to be revised. Under NEPA, the need to reevaluate NPDES permits and TMDLs and thereby potentially ratchet down limits and allocation loads should be fully disclosed.

Recommendations: The EPA recommends that a more complete and accurate list of permittees be included, including both major and minor facilities. The EPA recommends that the need to reevaluate NPDES permits and TMDLs be fully disclosed.

Water Quality Modeling

The DEIS evaluates water quality impacts using HEC ResSim (hydrologic model) and HEC5-Q (water quality model). According to the USACE, the HEC 5-Q model is used because of its "ability to simulate the entire riverine and reservoir system in a single model" and it includes both point source and nonpoint source loads." However, the results from the models are inconsistent with actual hydrologic and water quality conditions that have been observed (by the EPA and the States). It is unclear why more dynamic (site specific) water quality models that have already been calibrated, verified and used by Federal Agencies are not used to evaluate water quality impacts within the ACF Basin, particularly in areas of high concern and interest in the reservoirs located in the ACF Basin. Site-specific sophisticated modeling frameworks were developed by Federal and State Agencies to ensure that appropriate water quality decisions are made. The EPA provided similar comments on the Allatoona–Coosa-Tallapoosa Water Control Manual FEIS and efforts were not made to fully consider site-specific modeling, especially in critical areas of the Basin.

Recommendation: Since a more generic and less precise modelling framework was used for the DEIS analysis – one lacking the spatial and temporal specificity, and mechanistic precision, to determine impacts of the action on water quality standards – the EPA strongly recommends the USACE fully disclose the likely water quality impacts of the ACF WCM, particularly in the reaches that have established TMDLs, known water quality impairments, and/or NPDES permit holders that may require permit modifications due changes in flows. This additional analysis should employ either the existing water quality modeling framework used for deriving water quality criteria, TMDLs, and NPDES permit limits (using linked watershed, 3D hydrodynamic and water quality models) or a modeling framework with similar precision. Model outputs should be expressed with adequate spatial and temporal specificity to demonstrate that the authorized use of water quality will be balanced under the WCM, as measured by the magnitude, duration and frequency components of the water quality standards applicable under the CWA, particularly for the chlorophyll-a and dissolved oxygen parameters.

Modeling for Water Supply Needs

The EPA understands that the Water Management Measures were formulated and combined to form Water Management Alternatives. Water Supply Measures were formulated separately and then combined with Water Management Alternatives to form the final suite of alternatives. It appears that modeling (for hydropower, recreation, water supply, etc.) was conducted early during the Water Management Alternatives phase of the alternatives analysis. The EPA understands that Glades Reservoir and the 2013 Georgia request were modeled to disclose impacts, however, it is unclear as to how the modeling for Glades Reservoir and the 2013 Georgia request were integrated into the final array of alternatives and there is no explanation as to the methodology for disclosing these impacts.

Recommendation: The EPA recommends the USACE better explain how Glades Reservoir and the 2013 Georgia allocation request was integrated into the final suite of alternatives. The EPA also recommends the USACE explain how Glades Reservoir and the 2013 Georgia allocation request was modeled to disclose impacts to Congressional authorized project purposes and related environmental and socioeconomic impacts.

Integration of Water Management Measures and Water Supply Measures

It appears that modeling (for hydropower, recreation, water supply, etc.) was conducted during Water Management Alternatives phase of the alternatives analysis. As written, the DEIS does not explain how the Water Supply Measures were integrated into the Water Management Alternatives. As written, it is also unclear whether modeling was conducted for the final array of alternatives (Water Management Alternatives combined with Water Supply Measures).

Recommendation: The EPA recommends the USACE better explain modeling to determine impacts on project authorities (as defined on pg. ES-1 to include water quality and threatened and endangered species) and environmental consequences for all proposed alternatives (including the No Action alternative).

Navigation

Several objectives for the update to the WCM were developed, including increasing the reliability of navigation on the ACF system. "Measures considered by USACE for navigation included: continuing the current operations in support of navigation; periodic navigation based upon the number of opportunities during the year when sufficient flows would be available to provide channel depths of 7-ft or 9-ft; defined navigation seasons such as December–May, January–April, and January–May; defined navigation season (variable), which would specify the navigation season as four months in duration or, when sufficient water is available, five months; and year-round navigation" (ES12-13). However, the DEIS states that the "Apalachicola River was designated as a low use navigation project in Fiscal Year 2005 which greatly reduces the likelihood of receiving funding for maintenance dredging" (p. 7-20). The EPA is unclear why changes to the operation of the ACF basin are proposed in order to meet navigation purposes when the USACE has designated sections of the basin as "low use navigation." In addition, the EPA notes that the DEIS states the "USACE has not dredged on the Apalachicola River since 2001 for a multitude of reasons, including Florida's denial of water quality certification for dredging in 2005" (page 4-21 (2.2.6). The DEIS does not discuss the "multitude of reasons" nor elaborates on the reasons Florida denied the permit. It is the EPA's understanding that USACE initiated a report (The 1998 Operation and Maintenance (O&M) Cost Savings Initiative report) that established benchmark values for project performance (output and cost) and identified projects in which performance did not meet the benchmark. The EPA understands that the Apalachicola navigation project did not meet the benchmark and subsequently did not receive funding for navigation.

Recommendation: The EPA recommends the FEIS provide additional detail on why operational changes are being proposed in the ACF WCM to meet navigational needs in the basin given the determination that the Apalachicola River is a "low use navigation project" and has not been allocated funding for navigation in recent years, Specifically, identification of the stakeholders

supporting improved navigation in the basin, their reasoning for improved navigation, and the economics behind improved navigation between Columbus and Apalachicola. The EPA also recommends the FEIS elaborate on the circumstances for which the USACE was denied a water quality certification from the state of Florida.

Georgia 2013 Request -Water Demand and Population Forecast Data

Use of most recent water demand and population forecast data: The EPA acknowledges that the State of Georgia's 2013 allocation request is of great importance as metro Atlanta's population continues to grow. The EPA supports the consideration of sustainable solutions to future water supply needs. However, the Metro North Georgia Water Planning District (MNGWPD) released updated water demand projections in August, 2015 that indicate metro Atlanta will need 25% less water in 2050 than previous analysis (2009) projected. The Georgia Office of Planning and Budget (OPB) also released population projections that indicate that the Hall County 2050 population projections are 318,828 and not the original projections of 729,192, which is far less than anticipated. Given when the new water demand projections and population projections were released, understandably, the latest numbers are not included in the state of Georgia's 2013 allocation request and nor are they within the current DEIS.

Recommendation: Given the substantial difference in the numbers and the potential effect on the analysis, the EPA recommends that the FEIS include the most recent data on water demand and population growth projections and base its final analysis on those newer projections.

Drought Operations

On page 5-31, the USACE discusses extreme drought operations and discusses the establishment of action zones (1A, 2A and 3A) in the inactive storage pool within the reservoirs. However, the USACE does not discuss the triggers to activate or suspend each action zone within the inactive storage pool. Also, in Figure 5.4-1, the USACE identifies Zone 1A, 2A and 3A as well as list water supply, water quality and endangered species in bullets under each action zone, but does not explain its meaning.

Recommendation: The EPA recommends the USACE elaborate on how the inactive storage action zones will be implemented and provide an explanation for Figure 5.4-1.

Recreation

The EPA notes that recreation is only considered within the USACE reservoir projects and impacts related to recreation downstream of the projects and/or within non-federally operated lakes/reservoirs are not considered. There is also no consideration of recreation impacts within the Chattahoochee National Recreation Area, which would be directly impacted by operational changes to Buford Dam. The EPA understands that the Chattahoochee National Recreation Area provides a significant positive economic impact to the region.

Recommendation: The EPA recommends the DEIS evaluate operational and economic impacts on recreation not only within the USACE projects, but also downstream. It should disclose

impacts to other non-federally owned reservoirs. Specifically, the EPA recommends the USACE analyze impacts associated with the Chattahoochee National Recreation Area.

Climate Change /Greenhouse Gases

The EPA notes that the DEIS contains some analysis of the potential effects of climate change on ACF reservoir operations and a limited discussion of greenhouse gas (GHG) emissions. The DEIS discusses existing climate conditions in Alabama, North Florida, and Georgia, including areas associated with the ACF Basin. According to the DEIS, "none of the alternatives evaluated would have any direct or indirect effects on the climate nor would there be any GHG emissions associated with either the No Action Alternative or the Proposed Action (PAA), and neither would contribute to global warming or changes in climate." The DEIS also states that, " (a)lthough regional GHG emissions are partially a function of population and land use, for the purposes of this EIS, population and land use throughout the basin are not expected to change appreciably due to the proposed updates. As a result, it is assumed that any changes in GHG emissions would have occurred under the No Action Alternative.... As a result, "climate change as a potentially affected resource was not carried forward for detailed analysis in this DEIS. However, climate change has been carried forward in section 6.8 of the DEIS to facilitate a discussion of the Proposed Action within the framework of future climate scenarios." The EPA believes that in fact there may be differences in GHG emissions between the no action and action alternatives. Under the PAA, navigation is expected to increase. However, the additional GHG emissions associated with increased navigation activity do not appear to have been quantified and considered.

Recommendations: The EPA recommends that the USACE provide estimates of the potential GHG emissions associated with the alternatives. EPA notes that there is an expanding body of literature on the greenhouse gas contributions (CO2, CH4, N2O) of reservoirs and recommends that the USACE consider estimating emissions from the reservoirs in the FEIS (Varis, Kummu, Härkönen, & Huttunen, 2012). For example, emissions pathways include flux across the air-water interface, from supersaturation in the sediment, releases immediately below the turbines and further downstream (Diem, Koch, Schwarzenbach, Wehrli, & Schubert, 2012). Recent research indicates that shallow embayments may be a particular hotspot for methane production in reservoirs and may be substantially impacted by reservoir operations (particularly the range of pool elevations) which are managed under the WCM. Recent research also indicates that temperature reservoirs may be a source of greenhouse gases on par with the previously acknowledged contributions of tropical reservoirs.

Glades Reservoir

The Glades Reservoir (Glades) is proposed as a new impoundment on Flat Creek in Hall County, Georgia. The proposed Glades Project has changed considerably (from pumped storage to treatment via Cedar Creek Reservoir, to pass-through to Lake Lanier, to other possible piping and treatment options since the 2011 proposal was submitted for CWA Section 404 permitting). The EPA notes that the proposed Glades project is included in a number of the alternatives and there are some key differences in the Glades project described in the WCM DEIS and the recently proposed Glades Reservoir DEIS. The EPA recommends that the USACE review and consider climate models that predict changes in precipitation, seasonal patterns of rainfall,

greater frequency of intense storms, and extended droughts and the effects those changes may have on the operation of the system.

Inconsistency between Glades Reservoir DEIS and the ACF WCM DEIS: The EPA is concerned that pertinent information (for the ACF WCM) recently published in the Savannah District's Glades Reservoir DEIS [1]was not disclosed in the ACF WCM DEIS. The Glades Reservoir DEIS's NAA includes the assumption that the Mobile District will grant the state of Georgia the full 297 mgd withdrawal allocation. As a part of modeling for all alternatives (including the NAA), the Glades Reservoir DEIS states, on page 4-232, "On average," the Glade Reservoir will result in, "an estimated 1-foot decrease for daily pool level at Lake Lanier; and a 0.05-foot decrease in daily pool level at West Point Lake…A decrease of approximately 5.5 feet in the Lake Lanier minimum daily pool level during a critical drought period similar to the 2007-2009 drought."

In the Glades Reservoir DEIS, the NAA assumes that Hall County will be granted 60 mgd of the 297 mgd requested by Georgia. The NAA including the 60 mgd allocation was modeled to show the daily pool elevation of Lake Lanier. On page 4-66 of the Glades Reservoir DEIS, it states that, "There is a 1-foot decrease to Lake Lanier's water surface level going from the Baseline Conditions (L18) to 2060 conditions (including the Proposed Project, all action and NAA). The 1-ft decrease, again, is a result of the overall system demand increase in the future (discussed further in the Cumulative Effects Section) rather than the effects of adding the reservoir to the ACF system." The EPA understands that the ACF DEIS modeled impacts to Lake Lanier pool elevation using 128 mgd (which includes the last official water contract agreement of 20 mgd from Lake Lanier). During discussion about the alternative that considers just the State of Georgia's water allocation request (Alternative 7D) on page 6-15 (ACF WCM DEIS, section 6.1.1.1.1.6), the USACE states, "…daily water surface elevations at the 90-percent exceedance level (Figure 6 1-4) are essentially the same, except that median daily water surface elevations in July through early September would likely range up to 0.5 ft. lower than the elevations under the NAA." Later when the USACE discusses Alternative 7E (Georgia allocation request plus Glades Reservoir) the USACE states, "This alternative is identical to Alt7D except that the reallocation of storage in Lake Lanier would be reduced to support 237 mgd and an additional 40 mgd would be available from Glades Reservoir... "

The EPA is concerned that there is an inconsistency between the modeled water supply impacts at Lake Lanier between the Glades Reservoir DEIS (1' elevation loss during the dry season) and the ACF WCM DEIS (.5' elevation loss during the dry season). The EPA understands that should the Georgia 2013 request be implemented with or without Glades it could cause up to a 0.5 ft. of elevation loss from Lake Lanier during the dry season (July through September). This is a loss of 524,700 acre-feet of water. The EPA is concerned that this elevation loss is not fully discussed. The EPA also notes this is not consistent with the modeling conducted by Savannah District.

Storage in System: A key question is whether storing water in an additional new reservoir such as Glades actually represents a gain or loss to the system. The impoundment of these waters would be less than one mile upstream of Lake Lanier. Without Glades that water would

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[1] US Army Corps of Engineers, Savannah District, *Glades Reservoir Draft Environmental Impact Statement*, Oct. 2015. P.2-35

otherwise flow into Lake Lanier. Could the same volume of water be withdrawn directly from Lake Lanier by Hall County without incurring the impacts of the impoundment? (The EPA notes that one version of the Glades project proposed a pass-through scenario whereby water stored in Glades would simply be released back to the Chattahoochee River to flow into Lake Lanier from which it would be withdrawn.). The impacts of construction of the Glades reservoir include the loss of over 90,000 linear feet of stream, 39 acres of wetlands, loss of water from the system due to inactive storage in an additional reservoir, as well as evaporative losses from the impoundment. Given that the DEIS considers a range of allocation and withdrawal options, it seems entirely possible that the volume of supply sought for Hall County could be stored in and then withdrawn directly from Lake Lanier. Alternatives 7D and 7F (without Glades) include a Lanier withdrawal value of 297 mgd; Alternative 7E uses a Lanier withdrawal value of 257 mgd. These are 112 mgd and 72 mgd greater than the 185 mgd Lanier withdrawal value used for the PAA (in association with 40 mgd assumed for Glades). This appears to validate the feasibility of storing the full supply needed for Hall County (beyond that coming from Cedar Creek Reservoir, already in existence) in Lake Lanier without incurring additional adverse impacts to aquatic resources for conversion of streams and wetlands to impounded waters.

Description of Glades Reservoir and Pass through Transmission: The EPA notes that there is not an adequate description of the proposed Glades Reservoir within the ACF WCM DEIS. Since Glades Reservoir was treated as an integral part of the Preferred Action Alternative (PAA), the EPA thinks a more robust description of the Glades Reservoir and the Savannah District's DEIS should be included within the FEIS. Most notably, the EPA is concerned that the pass-through transmission scenario[2] concept as proposed by Hall County in the Section 404 permit application and described in the Glades Reservoir DEIS is not disclosed. The EPA understands that the Mobile District must approve this pass-through scenario and it could potentially require a USACE policy change to implement; however, there is no discussion regarding this in the ACF WCM DEIS.

In addition, the DEIS refers (in Section 2.1.1.1.6.10) to the Glades Reservoir proposed safe yield of 72.5 mgd. This represents a projected 2060 supply-demand gap of 42.4 mgd, but it should be noted includes an assumed 18 mgd supply from Lake Lanier, as well as supply from Cedar Creek Reservoir and groundwater. (Note: this is also ten years beyond the 2050 demand used elsewhere in the ACF DEIS). The ACF DEIS also notes that the iteration of Glades Reservoir assumed that water would be transported by pipeline to Gainesville for treatment and distribution with return flows to Lake Lanier. However, this is not the current proposal. Other piping and treatment strategies could involve returns in different locations; the potential configuration should such a reservoir project go through is currently under review.

Impacts of Glades Project: The DEIS acknowledges (Section 5.1.2) that, "Since this project is still in the permitting process, it is not known whether or when the project will be implemented." The DEIS also states, "The assumption that Glades Reservoir would be constructed is made for analytical purposes only and does not constitute an agency decision on the merits of the project," The inclusion of the Glades Reservoir in an interim form could appear to imply a preference for the project, without considering the impacts of its construction and operation. Glades could potentially impact 39 acres of wetlands and over 90,000 linear feet of streams just in terms of

[2] US Army Corps of Engineers, Savannah District, *Glades Reservoir Draft Environmental Impact Statement*, Oct 2015, p. 2-35

direct impacts. These are being considered in a separate review for the project itself, but this ACF WCM Update DEIS includes the construction of Glades in the PAA without taking those impacts into account. Statements such as, "Glades Reservoir, together with a reallocation to support a withdrawal of 165 mgd under the PAA, would satisfy a substantial portion of Georgia's 2040 water supply need" imply a qualitative judgement that construction of Glades Reservoir is favored, and circumvents the comprehensive environmental and public interest review currently underway.

Current Demand Forecast: The demand forecast released in August 2015 by MNGWPD calls for additional consideration of the accuracy of supply needs, given that actual demand does not appear to be on the trajectory used for Glades. That Hall County's 2050 water demand is forecast to be 31-34 mgd rather than 68 mgd leads to a considerably lower demand than the demand identified in the Glades DEIS (72.9 mgd). Meeting Hall Counties demand by allocating water from Lanier appears to be the least environmentally damaging approach.

Recommendation: The EPA recommends the USACE (Mobile and Savannah Districts) more consistently evaluate Lake Lanier pool elevation, storage, water supply and related impacts within their respective FEISs. The EPA supports a more consistent approach (between the two USACE Districts) to modeling and evaluating Glades Reservoir impacts on storage within Lake Lanier. For disclosure, of data and information from the Glades Reservoir, the EPA recommends the current modeling and project configuration for the Glades Reservoir be discussed in the ACF WCM FEIS. The EPA also recommends the USACE comprehensively describe the current configuration of the Glades Reservoir project in the FEIS as well as discuss the pass-through concept and Mobile District's approval role. In addition, the EPA recommends the USACE more fully describe the Glades project and properly disclose the impacts associated with the construction and operation of the project. Most importantly, the EPA strongly recommends the USACE consider the updated demand forecast and population projects released in August 2015 by MNGWPD and disclose how this these new forecast impacts the PAA and the feasibility of the Glades project.

Aquatic Life and Endangered Species

The EPA notes that the U.S. Fish & Wildlife Service (FWS) has been actively engaged in the review of the WCM and has submitted various comment letters to the USACE regarding the protection of threatened and endangered species within the Basin. The EPA notes that the FWS provided specific comments to the USACE in August 2013 that recommended measures to protect aquatic resources in the Basin. The EPA also notes the USACE did not incorporate many of the FWS recommendations during the screening of the alternatives. Of particular concern are salinity conditions in the Apalachicola Bay that do not appear to be fully considered in the screening of the alternatives. The EPA understands that the FWS developed an independent alternative.

Recommendations: The EPA principally defers to FWS recommendations for the protection of threatened and endangered species on this project and encourages the USACE to include full consideration of the FWS recommendations. The DEIS emphasizes the importance of water quality to aquatic life in the ACF Basin: "Water quality degradation is a frequently cited concern for the riverine-dependent species included in the Comprehensive Study's Protected Species Report (Ziewitz et al., 1997). It is quite likely that water quality is a limiting factor for several of

the species, including many of the 16 federally listed mussels listed in Table 2.5-11. Any actions that could alter water quality should address effects on the protected species."

Monitoring and Adaptive Management Plan

The EPA is concerned regarding the lack of a monitoring and adaptive management component within the DEIS. Given the significant risk and uncertainty associated with the operation of the ACF Basin and climate change (i.e., changes in rainfall patterns, extended droughts), the EPA is concerned that there are no mechanisms or framework in place to ensure responsive changes to the operation of the ACF system. The EPA notes the uncertainty associated with the proposed alternatives analysis, metrics used for alternative selection and the lack of specificity in the water quality modeling tools used for the DEIS. Therefore, the EPA remains concerned about the potential impacts to water quality and other aquatic resources/species.

Recommendation: Given the uncertainty associated with how various metrics were used to develop the alternatives analysis and the water quality modeling tool, the EPA supports the formation of an Federal Interagency Workgroup (IWG) consisting of the National Parks Service, the USFWS, the National Marine Fisheries (NOAA), the Southeastern Power Administration, the EPA and the USACE to fully assess the potential water quality impacts due to changes in Reservoir Operations. The IWG would help develop a monitoring and adaptive management plan that would provide a forum to refine the reservoir operations along the rivers to more effectively balance the water requirements of the stakeholders. We support a process that uses functionally defined metrics as proposed by the Fish and Wildlife Service as a basis for future decision-making.

The recommended Federal IWG could include a subgroup to evaluate and analyze how to incorporate water quality into the metrics for alternatives analysis so that it would meet the congressionally authorized purposes of all Agencies. This could include an analysis of the most appropriate models to use for evaluating the impacts of operations of the dams on water quality and the potential for any improvements that could be made to the operation of the dams to include components of naturalized flow. There are a wide range of over a hundred large scale dam re-regulations that have been conducted both in the US and around the world that have resulted in improved aquatic life in riverine sections below large dams while maintaining congressionally authorized purposes. The EPA would assist in evaluating the effects of the WCM operations on water quality standards, with a particular emphasis on physiochemical endpoints such as dissolved oxygen, biological endpoints such as sensitive aquatic species and physical endpoints that protect the designated aquatic life use, including adequate flows to maintain the physical integrity of habitat. The EPA would also be willing to help develop an adaptive management approach to implement the WCM's in the future.

USACE Institute for Water Resources Guidance: The USACE Institute for Water Resources developed "Converging Waters: Integrating Collaborative Modeling with Participatory Processes to make Water Resources Decisions (2011)" that provides guidance for water management decision making. This document provides guidance for a modeling process that emphasizes "collaborative development of performance measures, agreement on modeling data and methods, joint development of the models in an open and transparent process, and agreement on the initial alternatives to be modeled" (p. 62). The USFWS provided suggestions for developing performance measures to the USACE for alternatives analysis, but many of the recommendations

provided in their 2010 Planning Aid Letter (PAL) and Coordination Act Report of 2011 have been largely overlooked in the DEIS. These recommendations are referenced in the more recent PAL of 2013 as still applicable because they had not yet been integrated.

Recommendation: The EPA recommends that in order to provide for collaborative development of performance measures, the USACE consider integrating USFWS performance metrics for floodplain connectivity. USFWS suggest using frequency of days an event is exceeded over an annual period percent of years that can exclude months that were exceeded by lumping them together as frequency of years. The EPA suggests that rather than using the following indicators "percent of years with days < flow, median number of days per year < flow, median consecutive days per year < flow, annual maximum 30-day growing season floodplain connectivity (acres)" (page 4-68), the USACE should integrate the USFWS suggested performance measures, such as: "maximum number of days per year < flow; maximum number of consecutive days per year < flow; frequency (% of days) of growing season floodplain connectivity (acres)" (USFWS, Coordination Act Report, 2011). The EPA believes that incorporating frequency of these events over annual periods (rather than using percent of years) would more adequately represent the frequency, duration, and magnitude of these events rather than simply the median value or annual maximum value of floodplain connectivity.